

WHAT IS CLAIMED IS:

1. A hydraulic actuator for use in a work vehicle, comprising:
 - a tube including a first end, a second end and an inner surface;
 - a plug, wherein a portion of the plug is disposed inside the tube and a portion of the plug extends outside the tube;
 - a weld extending around the perimeter of the plug and coupling the first end of the tube to the plug, the weld forming a fluid-tight seal between the plug and the tube;
 - a seal abutting against the plug and the inner surface of the tube and being spaced from the weld;
 - an end plug affixed to the second end of the tube to enclose and seal the second end of the tube, the end plug defining a rod opening;
 - a piston configured to be slidingly supported within the tube, the piston including a retract face, an extend face oppositely disposed to the retract face and a lip protruding from the extend face; and
 - a piston rod affixed to the piston, the piston rod extending out of the tube through the rod opening.
2. A hydraulic actuator according to claim 1, wherein the seal is an O-ring having a diameter and the piston has a diameter, and the diameters of the O-ring and the piston are substantially the same.
3. A hydraulic actuator according to claim 1, wherein the plug includes a pilot portion having an outer surface spaced from the inner surface of the tube such that a cavity is formed between the outer surface of the plug, the weld and the inner surface of the tube, and the cavity is sealed by the seal.
4. A hydraulic actuator according to claim 1, wherein the plug includes a groove in the portion of the plug disposed within the tube, and the seal is disposed within the groove.

5. A hydraulic actuator according to claim 4, wherein the lip of the piston is configured to press the seal into the groove of the plug.

6. A hydraulic actuator according to claim 4, wherein the lip of the piston is adapted to interfit with the groove of the plug.

7. A method of manufacturing a hydraulic actuator for a work vehicle, the actuator including a tube and a plug, the method comprising the steps of:
inserting a portion of the plug into a first end of the tube;
forming a weld between the plug and the first end of the tube around the entire perimeter of the plug and tube to form a hydraulic-fluid-tight junction between the plug and tube;
inserting a seal into a second end of the tube such that the seal is coaxial with the plug;
inserting a piston assembly into the tube;
coupling a second plug to a second end of the tube, the second end being oppositely disposed to the first end; and
supplying hydraulic fluid to retract the piston assembly into the tube and to force the seal into an abutting relationship with the plug.

8. The method of claim 7, wherein the plug includes a peripheral groove in the portion of the plug disposed within the tube and the step of supplying hydraulic fluid forces the seal into the peripheral groove.

9. The method of claim 7, wherein the piston assembly includes a piston including a retract face, an oppositely disposed extend face, and a lip protruding from the extend face, and the step of supplying hydraulic fluid supplies fluid to impinge the retract face to force the lip of the piston into abutment with the seal.

10. The method of claim 8, wherein the piston assembly includes a piston including a retract face, an oppositely disposed extend face, and a lip protruding from the extend face, and the step of supplying hydraulic fluid supplies fluid to impinge the retract face to move the lip of the piston to interfit with the groove.

11. A method of manufacturing a hydraulic actuator for a work vehicle, the actuator including a tube and a plug, the method comprising the steps of:

- inserting a portion of the plug into a first end of the tube;
- forming a weld between the plug and the first end of the tube around the entire perimeter of the plug and tube to form a hydraulic-fluid-tight junction between the plug and tube;
- inserting a seal into a second end of the tube such that the seal is coaxial with the plug;
- inserting a piston assembly into the tube; and
- forcing the piston assembly into the tube to seat the seal.

12. The method of claim 11, further comprising coupling a second plug to a second end of the tube, the second end being oppositely disposed to the first end, wherein the step of forcing the piston assembly includes supplying hydraulic fluid to retract the piston assembly into the tube and to seat the seal includes placing the seal into an abutting relationship with the plug.

13. The method of claim 11, wherein the step of forcing the piston assembly into the tube includes using a mechanical device to seat the seal includes placing the seal into an abutting relationship with the plug.